



Defense Information Systems Agency

Department of Defense

DoD Discovery Metadata Specification (“DDMS”) *Overview*

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DoD Discovery Metadata Specification (DDMS)

<https://metadata.ces.mil/mdr/irs/DDMS>

- **Purpose**

- Provides a uniform set of metadata to promote visibility of data assets across the Department of Defense.

- **Key Facts**

- Called out in DoDD 8320.02, “Data Sharing in a Net-Centric Department of Defense”
- Endorsed by E.O. 13388, “Further Strengthening The Sharing Of Terrorism Information To Protect Americans”
- Uses IC Information Security Markings (IC-ISM) for security markings on elements that may contain sensitive data.
- Used by Federated Search, Enterprise Catalog, DoD Metadata Registry, ...
- Employed by numerous COIs to facilitate discovery of data assets across the DoD enterprise
- Adopted both within and outside of the DoD, including NATO, Canadian Dept. of Nat’l Defense, and DHS
- Extensibility supports specialized discovery requirements

- **Primary Benefits**

- Common vocabulary for discovery data
- Managed through the DoD Metadata Working Group
- Leverages well established standards (Dublin Core, GML, ISO 8601, ...)

- **Primary Audience**

- COIs, DoD Capability Developers, DoD Data Providers




“The Department of Defense Discovery Metadata Specification (DDMS) defines discovery metadata elements for resources posted to the community and organizational shared spaces.”



DoD Discovery Metadata Specification (DDMS)

<https://metadata.ces.mil/mdr/irs/DDMS>

**Department of Defense
DISCOVERY METADATA SPECIFICATION**

[About](#) [Categories](#) [Documents](#) [Configuration Management](#) [Projects](#) [DoD Metadata Working Group](#) [Data Visibility](#) [Contact Us](#)

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Department of Defense Discovery Metadata Specification (DDMS) Home Page

Announcing DDMS 3.0

Welcome to the Department of Defense Discovery Metadata Specification (DDMS) Home Page! Here you will find current information about the DDMS and links to related documentation and resources. You can browse the [DDMS category sets](#) and review the [definitions and examples](#) as they appear in the specification. If you're looking for DDMS-related [projects](#), you can find them here. If you're looking for the CM process surrounding the DDMS follow the "[Configuration Management](#)" link. To contact the DoD MWG or the Metadata Registry team follow "[The DoD MWG](#)" and the "[Contact Us](#)" links respectively. If you're just looking to get started with the DDMS right away, you can download DDMS release Version 3.0 [here](#).

Each DDMS Release includes all of the relevant information for that version of the DDMS including the DDMS Specification, the XML Schema, Release Notes including the changes from the prior version and developers' notes, sample DDMS instance documents, and other related information deemed useful for understanding that version.

We're always looking for ways to improve the DDMS Home Page so if there's anything you would like to see, please [let us know](#).

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Section 1: Current DDMS Information (release 3.0)



DDMS & The DoD Net-Centric Data Strategy

- **“The DDMS is the common set of descriptive metadata elements that are to be associated with each data asset that is made visible to the Enterprise Discovery capability...” [DDMS]**
- **“...‘Enterprise’ refers to the Department of Defense, its organizations and related agencies.” [DDMS]**
- **“*The DoD Net-Centric Data Strategy* defines a data asset as any entity that is composed of data. For example, a database is a data asset that contains data records; e.g., system or application output files, databases, documents, or web pages.” [DDMS]**
- **“The term ‘data asset’ also refers to services that provide access to data.” [DDMS] (emphasis added)**



DDMS History

- **Version 3.0**
 - Addition of security markings to the DDMS root “Resource” element
 - Modifications to the XML Schema to support the specification’s intent
- **Version 2.0**
 - Addition of relatedResources element to allow the referencing of other resources related to the one being described.
 - Upgraded IC ISM Security Attributes.
 - Improvements to the readability of DDMS Specification and XML Schema.
- **Version 1.4:**
 - Several modifications related to the usage of GML within DDMS.
 - Restructuring of the DDMS Schema files to facilitate usage of the DDMS global elements outside of a DDMS Resource document.
- **Version 1.3**
 - Modified the Geospatial Coverage Element to provide a consistent representation of geospatial coverage compliant with the ISO 19115 Standard.
 - Changes focuses on increasing the ability to discover geospatially relevant data assets across the enterprise.
- **Version 1.2**
 - Modified the security element to leverage the CAPCO Security Markings. This revision also added CAPCO markings to the title, subtitle, description, contributor, publisher, and creator elements. In the DDMS XML Schema this modification was effected by directly reusing the IC ISM v. 2.0.
- **Version 1.1**
 - Modified the DDMS to incorporate changes that the DDMS Focus Group recommended, during its first task to define an XML format for the DDMS.
- **Version 1.0**
 - Initial Release



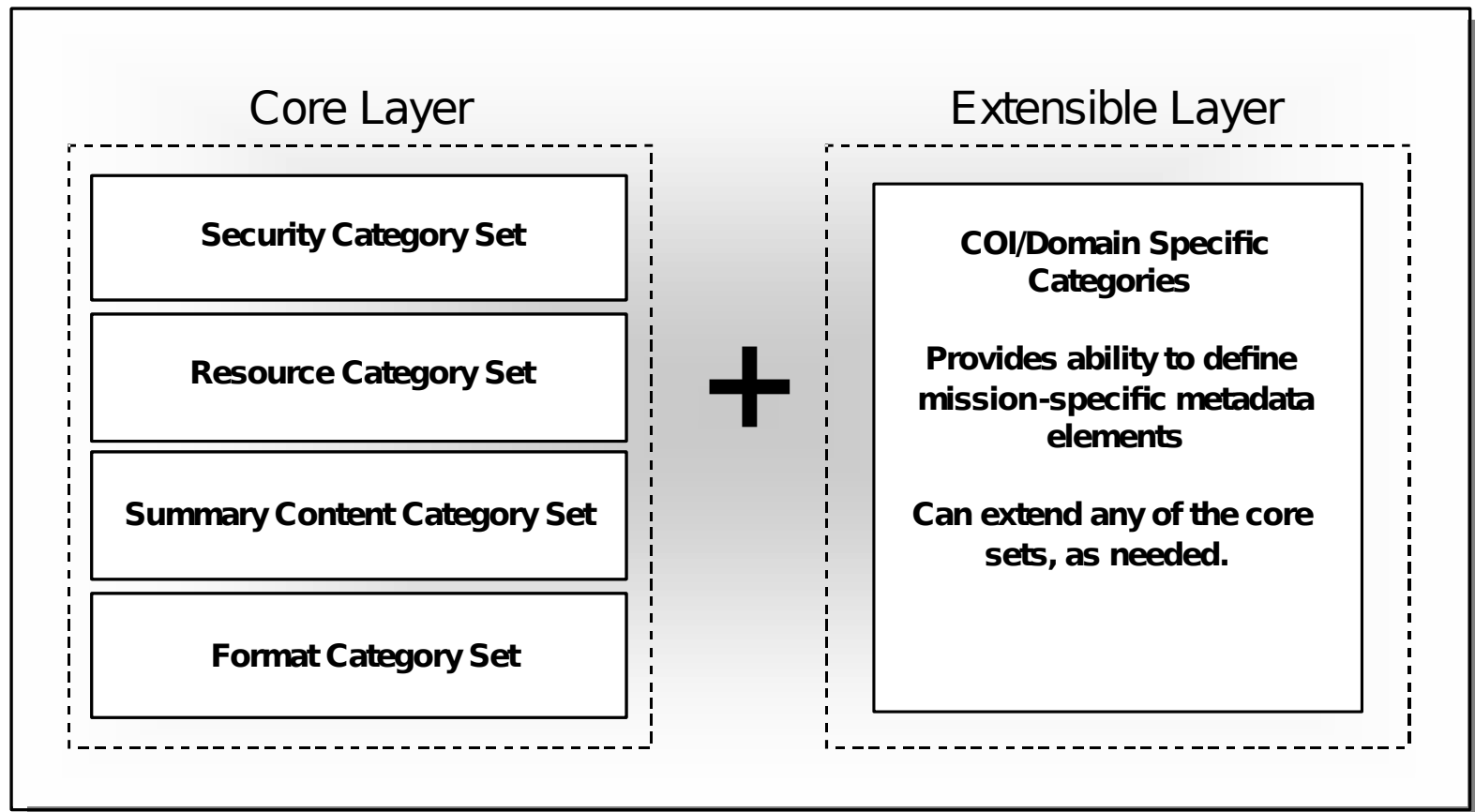
DDMS & Enterprise Services

- **Content Discovery**
 - **Federated Search and Content Staging are both leveraging DDMS Metadata to facilitate content discovery across the enterprise.**
- **Metadata Services**
 - **Metadata services are supporting the publication of COI taxonomies that capture COI semantics. These taxonomies are being used by Content Producers to categorize their content within the DDMS Records using the subject category element.**
- **Service Discovery**
 - **It is anticipated that the NCES Service Discovery capabilities will leverage DDMS metadata to enhance service visibility.**

DISA DDMS & Other Activities

- **Executive Order 13356 - “Strengthening the Sharing of Terrorism Information”**
 - The IC-MWG was charged with profiling “Common Information Sharing Standards for the U.S. Counterterrorism Community”
 - The DDMS was subsequently selected as the Application Profile for Discovery for the Phase 1 proposal of common standards for maximizing sharing of terrorism information.
- **Executive Order 13388 - “Further Strengthening the Sharing of Terrorism Information to Protect Americans”**
- **Aspects of the report back to the President were included in the Intelligence Reform and Terrorism Prevention Act of 2004. (Public Law 104-458, December 17, 2004)**

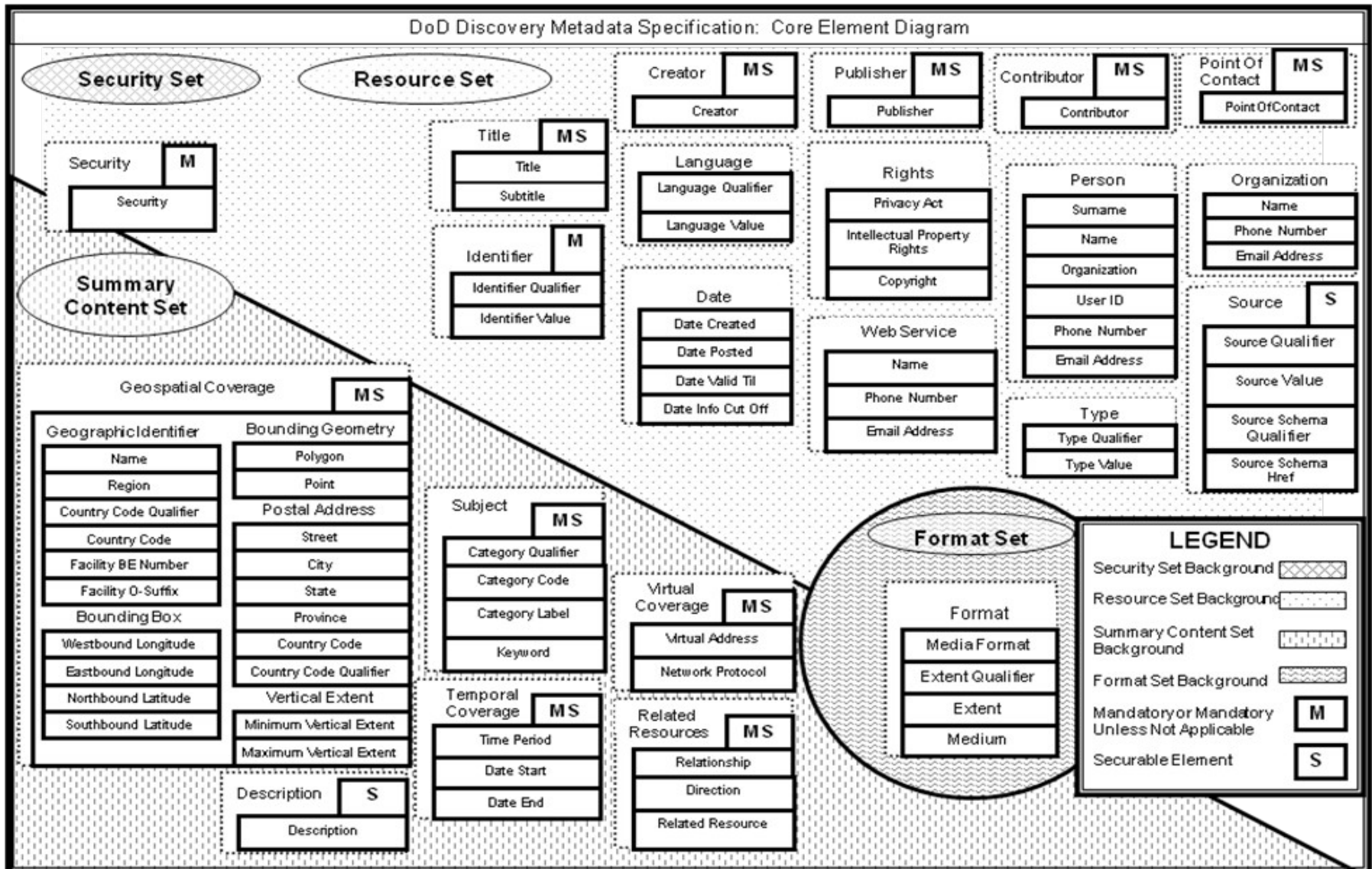
DDMS Extensibility



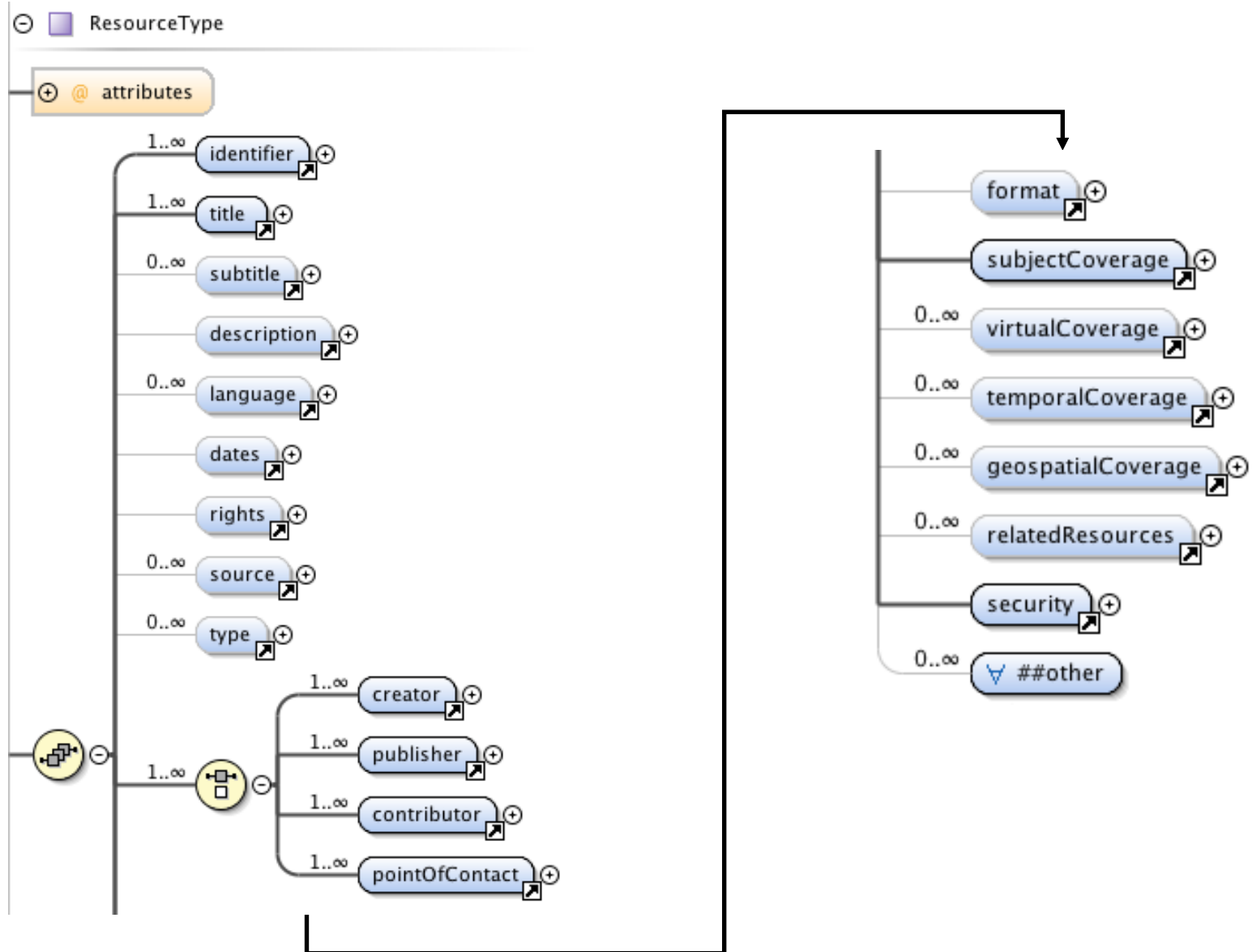
The DDMS XML Schema implements the Extensible Layer by leveraging the `xsd:any` element. This allows any elements from any namespace other than the DDMS namespace to be added to a DDMS record immediately following the `ddms:security` element.

DDMS Specification

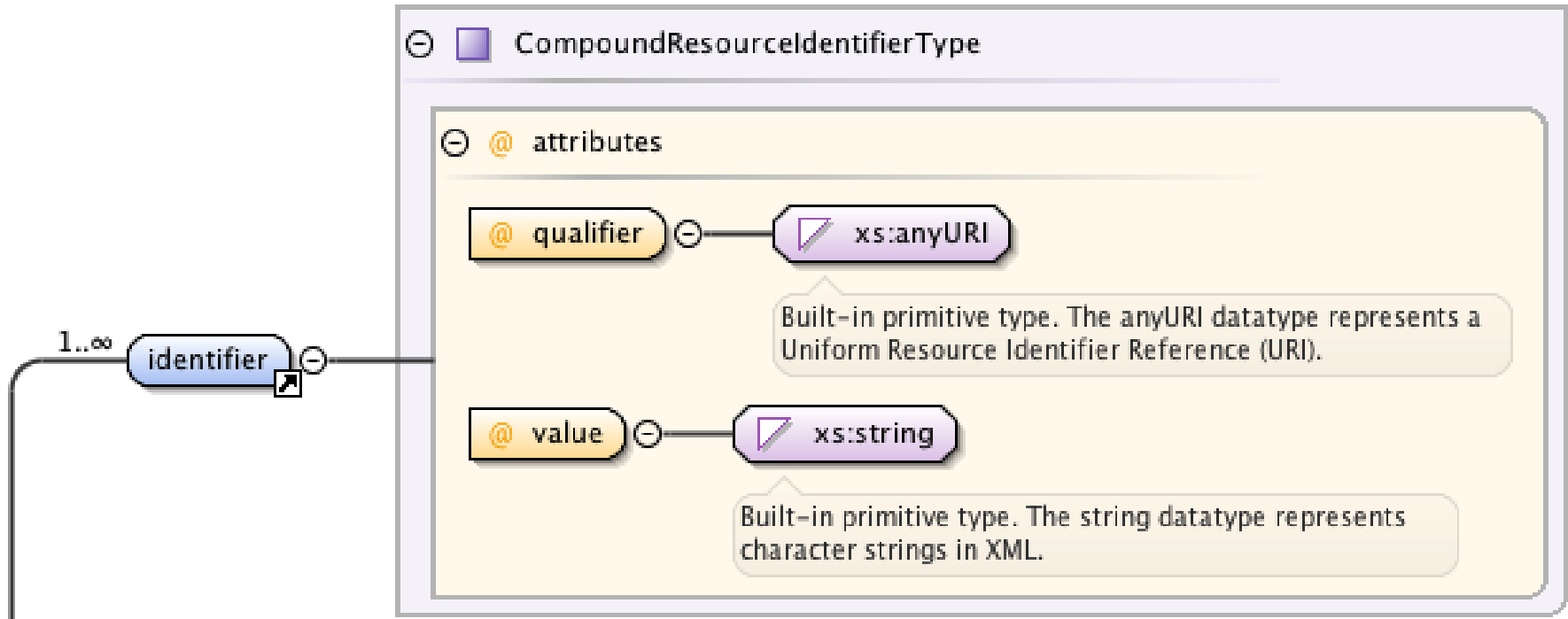
DoD Discovery Metadata Specification: Core Element Diagram



DDMS XML Format: Resource



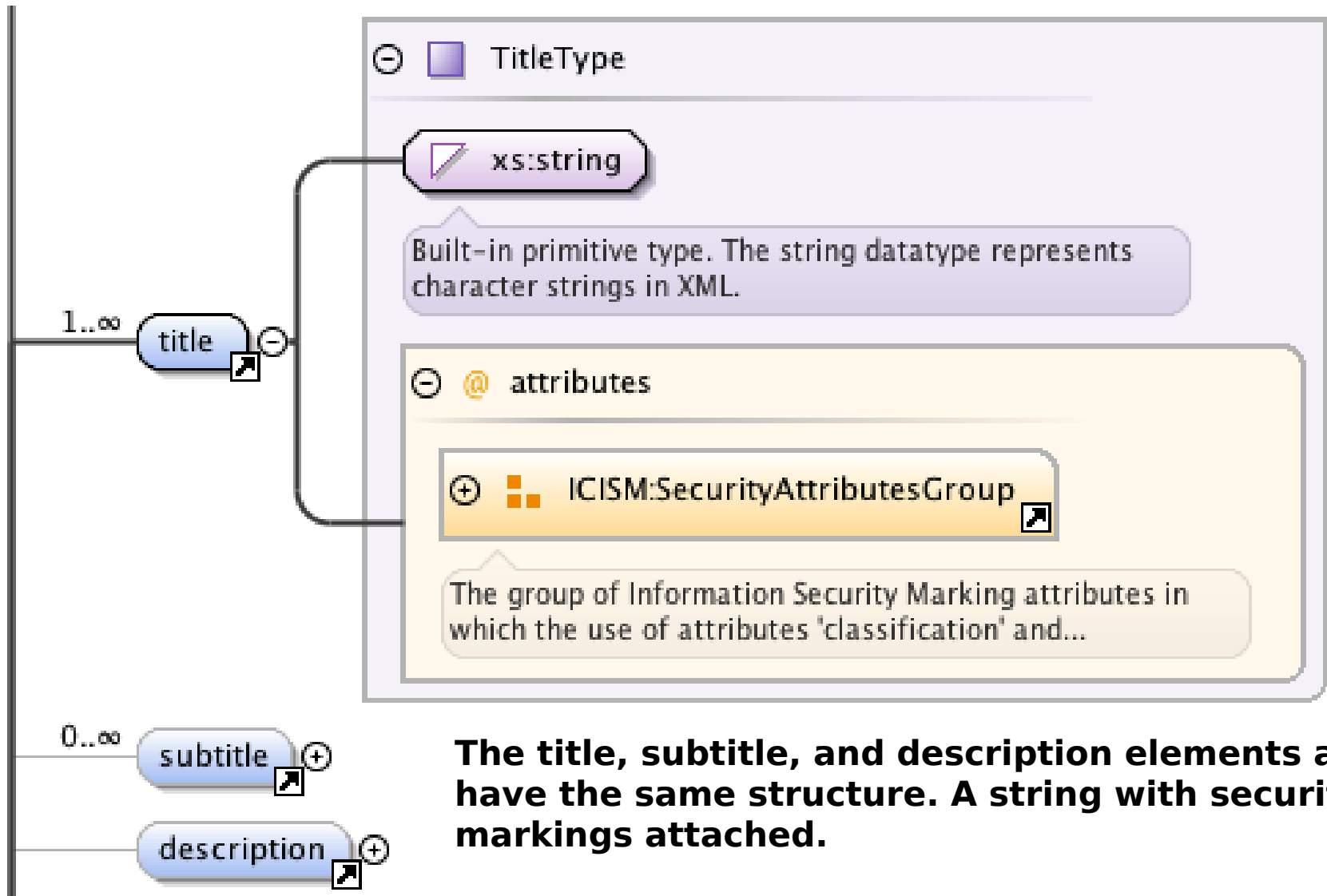
DDMS XML Format: identifier



Many elements adopt this approach where it allows for the specification of a controlled vocabulary (a qualifier) and a location for a term (a value) from that controlled vocabulary.

The *language* and *type* elements also follow this model.

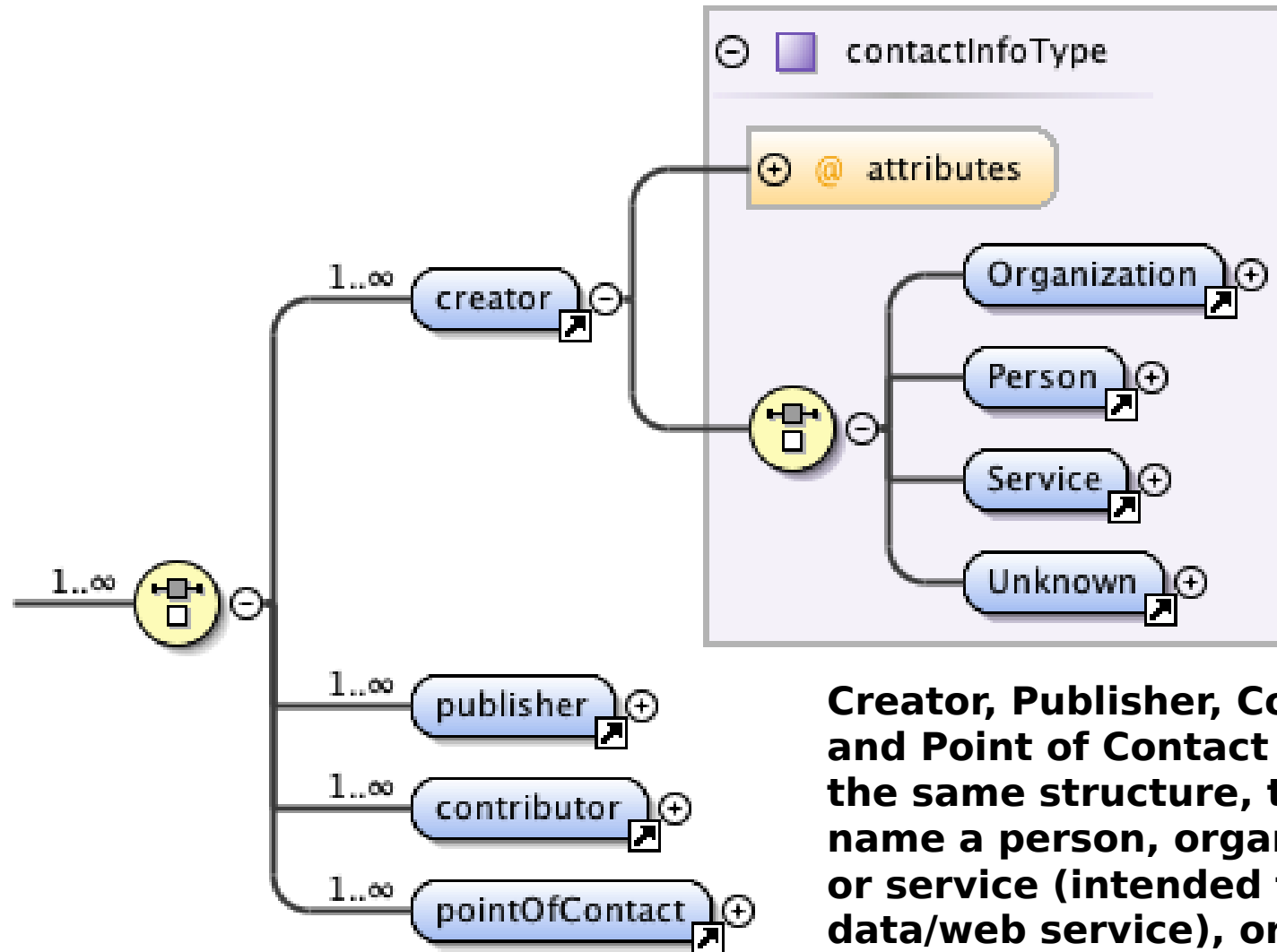
DDMS XML Format: title, subtitle, description



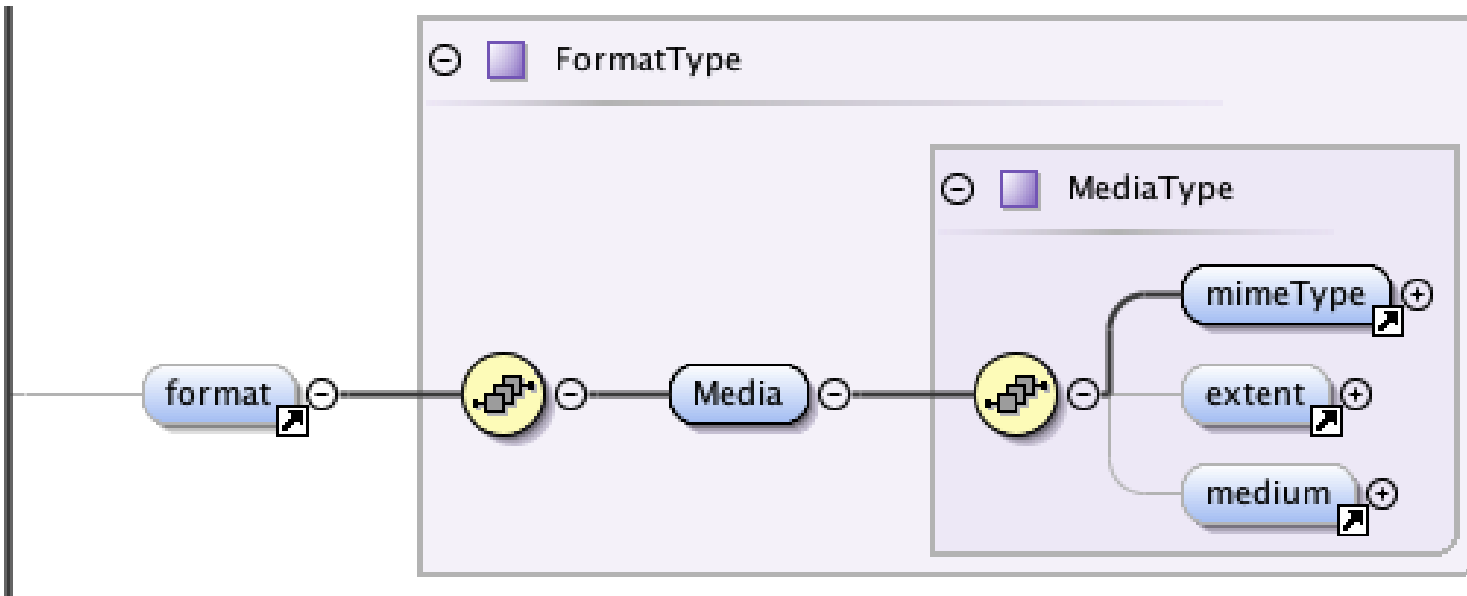
The title, subtitle, and description elements all have the same structure. A string with security markings attached.

DDMS XML Format:

creator, publisher, contributor,
pointOfContact



Creator, Publisher, Contributor and Point of Contact all have the same structure, they can name a person, organization, or service (intended to be a data/web service), or an unknown entity.



The format element is intended to characterize the physical manifestation of the resource being described.

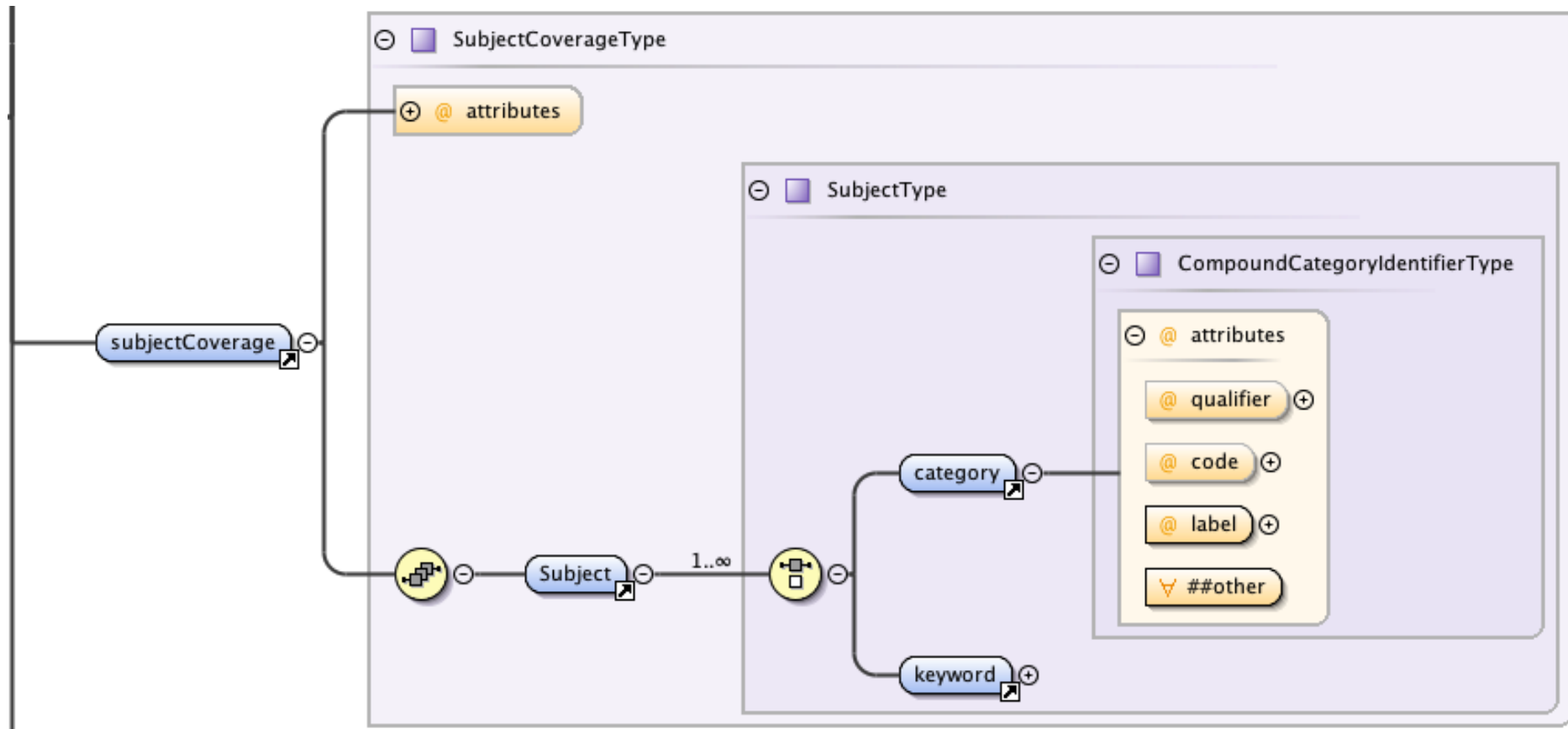
The mimeType child element is the mime type of the resource, e.g. text/html.

The extent child element is intended to characterize the size of the resource using the qualifier value scheme, e.g.

qualifier="http://metadata.dod.mil/mdr/ns/UnitOfMeasure/0.1/ComputerStorage.owl#byte"
value="39195"

The medium is the physical medium of the resource, e.g. paper, tape, disk, digital.

DDMS XML Format: subjectCoverage



The subjectCoverage element can have one or more Subjects that can be characterized by a set of categories and keywords.

The category element uses a qualifier/code/label set that is used similarly to the qualifier/value scheme where the label is a human readable representation of the category.

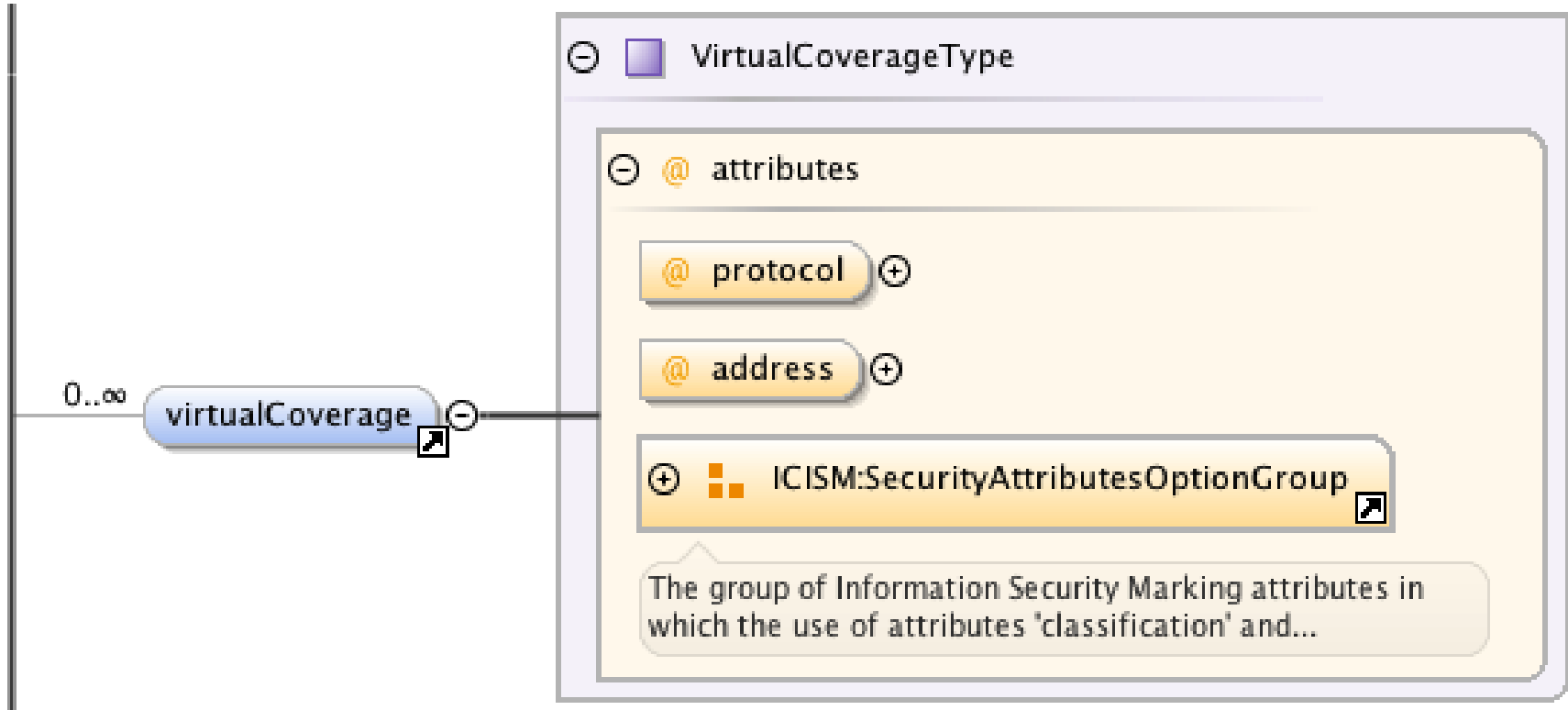


DDMS & NCES

Taxonomy Usage Example

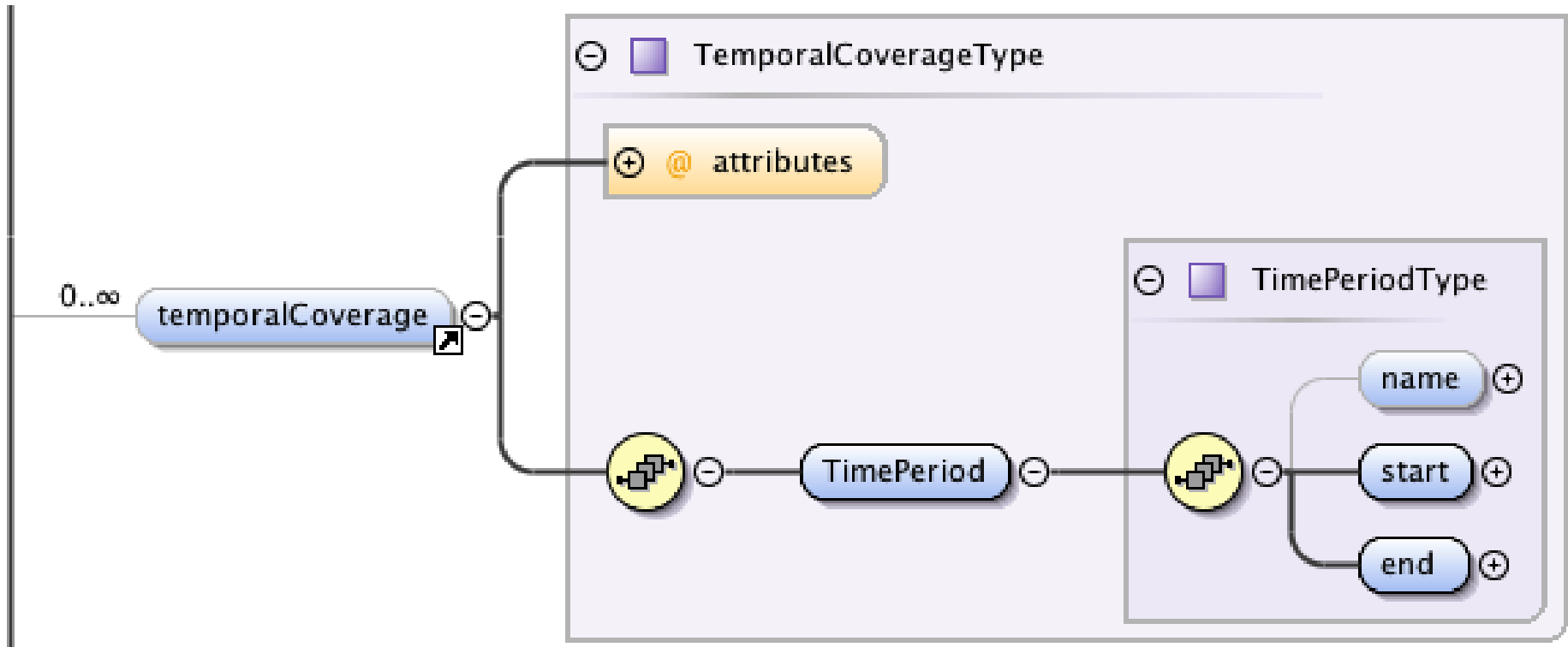
```
<ddms:subjectCoverage>
  <ddms:Subject>
    <ddms:category
ddms:qualifier="http://metadata.ces.mil/mdr/ns/TaxFG/0.75c/Core\_Tax\_0.75c.owl#Terrorist\_event" ddms:code="Terrorism_Event"
ddms:label="Terrorism Event"/>
    <ddms:category
ddms:qualifier="http://metadata.ces.mil/mdr/ns/DomainSets/1.0/GOP\_biofeature\_agent\_type.owl#\_21" ddms:code="_21" ddms:label="NERVE SARIN"/>
    <ddms:category
ddms:qualifier="http://metadata.ces.mil/mdr/ns/DomainSets/1.0/GMI\_TargetSystemType.owl#WMD" ddms:code="WMD" ddms:label="Weapons of Mass Destruction"/>
  </ddms:Subject>
</ddms:subjectCoverage>
```

DDMS XML Format: virtualCoverage



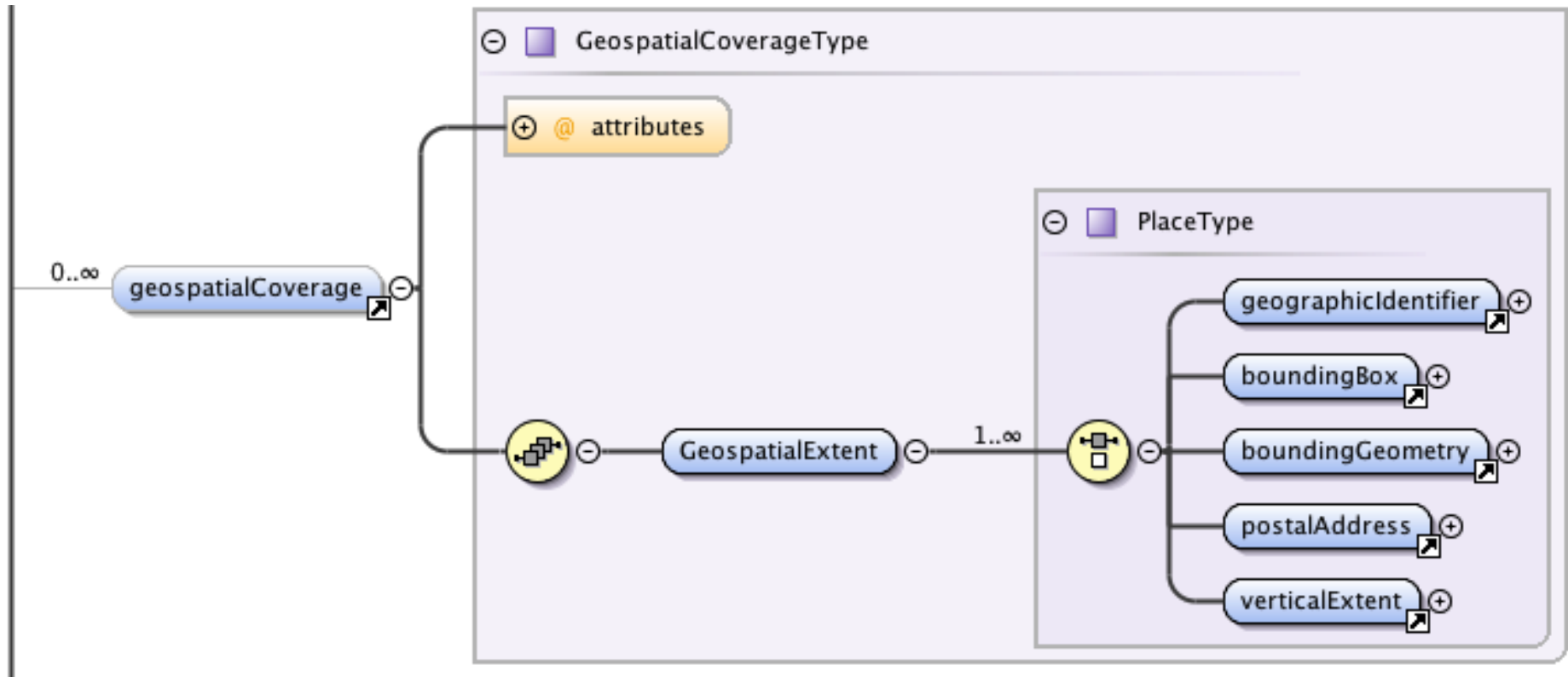
The virtualCoverage element identifies a protocol and virtual address space that the resource covers, or is about.

DDMS XML Format: temporalCoverage



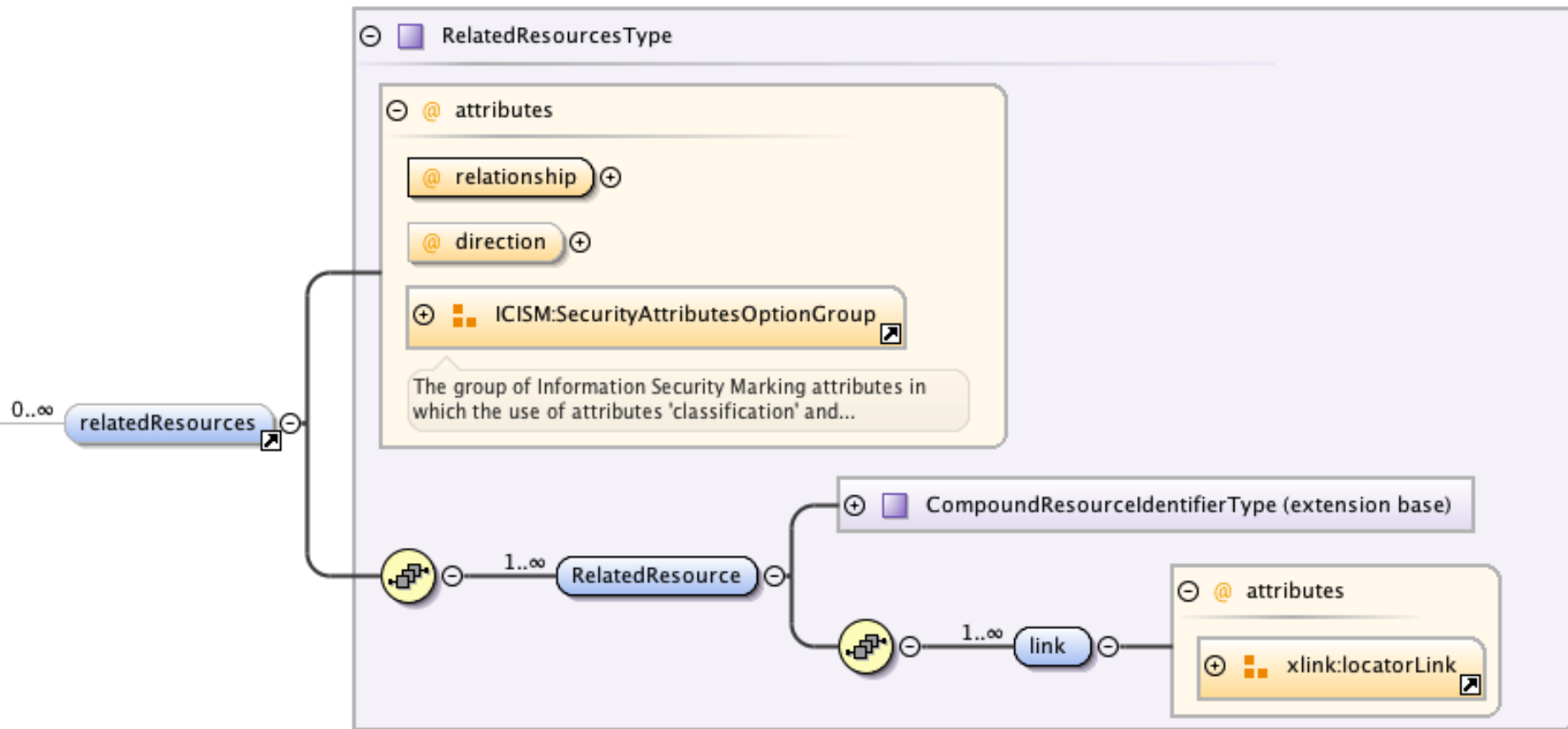
The `temporalCoverage` element identifies a time period to which the resource pertains. The start and end times are generally in ISO 8501 format but may be unknown, not applicable. This element also supports named periods, e.g., “The Cold War Era.”

DDMS XML Format: geospatialCoverage



The geospatialCoverage of a resource can be identified in several ways, an identifier, e.g. a name, or one of several geospatial constructs. Postal addresses can also be used.

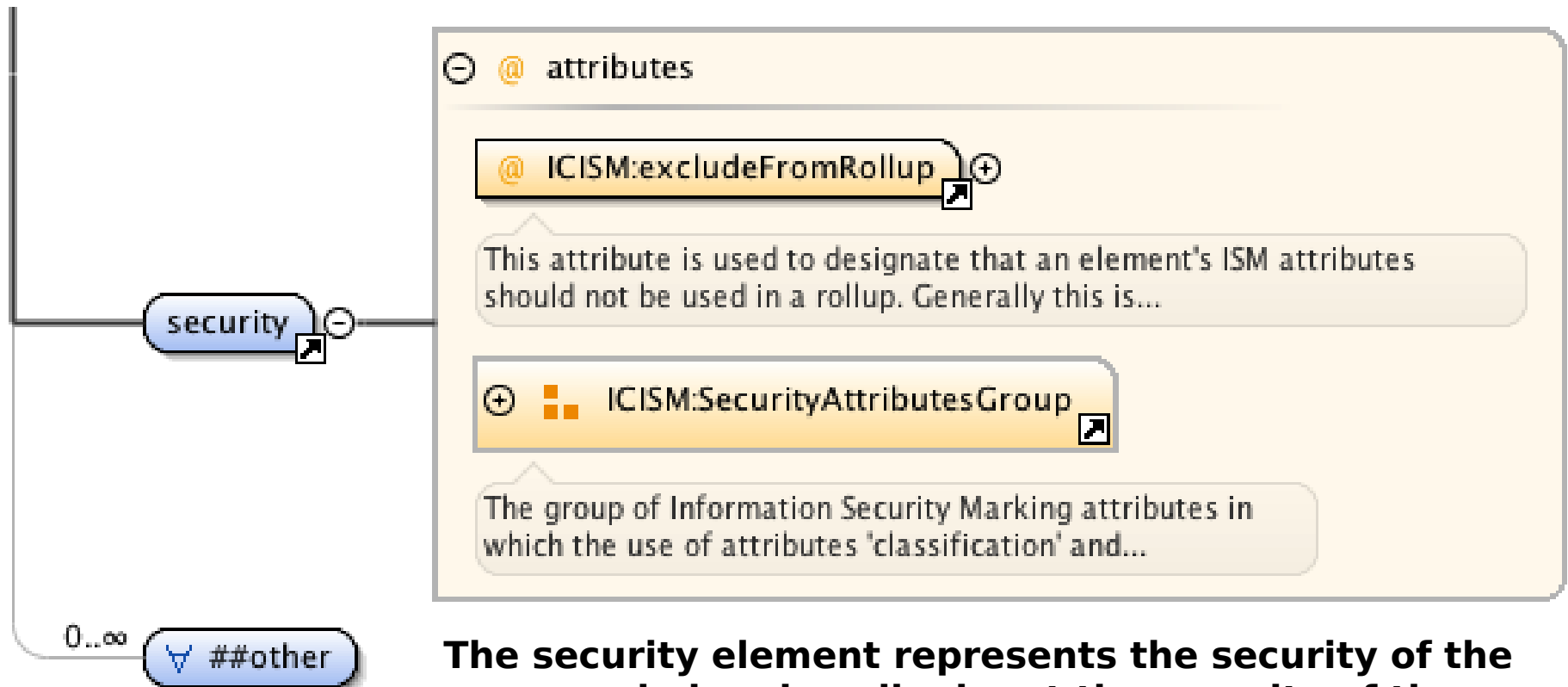
DDMS XML Format: relatedResources



The relatedResources element functions as a link-base of resources that are related to the one being described. It requires a relationship characterization and a direction of the relationship, i.e. inbound, outbound, or bi-directional. It then supports a link to the external resource using xlink.

DDMS XML Format

security, extensibility



The security element represents the security of the resource being described, not the security of the DDMS instance (that is captured on the Resource element).

The ##other element represents the primary extensibility element within the DDMS. Any elements not in the DDMS XML Namespace can be placed after the DDMS Resource security element

DISA 10 ways to extend DDMS

1. XML Schema extension

- **The DDMS supports the ability to add xs:any element defined in an XML Namespace other than the DDMS XML Namespace after the ddms:security element**
 - **Using this capability you can meet your own specialized discovery needs by adding XML Schema defined elements to DDMS instance documents used within your domain**

2. Create a taxonomy to be applied to the ddms:identifier element

- **E.g. create a taxonomy that specifies an identification scheme that could be used to uniquely identify a resource, e.g. a VIN Number scheme**

3. Create a taxonomy to be applied to the ddms:language element

- **E.g. a taxonomy of ISO language codes**

4. Create a taxonomy to be applied to the ddms:source element

- **Tough one, but a taxonomy that specifies a set of sources from which resources are derived; could be a set of authoritative sources as specified by a COI**

5. Create a taxonomy to be applied to the ddms:type element

- **Create a taxonomy that specifies a set of options for the nature or genre of the content of the resource, e.g. the Dublin Core Metadata Initiative Type Vocabulary (Service, Software, Sound, Collection, etc.)**

DISA 10 ways to extend DDMS

- 5. Create a taxonomy to be applied to the ddms:extent element**
 - Create a taxonomy that specifies a scheme to represent the size of a resource, e.g. a measure for its digital footprint
- 7. Create a taxonomy to be applied to the ddms:category element**
 - Create a taxonomy of terms specific to a particular domain that can be used to categorize resources of interest to that domain, e.g. the C2 Core and DoD Core taxonomies
- 8. Create a taxonomy to be applied to the ddms:countryCode element**
 - ISO 3166 & other standards take care of this, however few have provided an OWL encoding
- 9. Create a taxonomy to be applied to the ddms:relationship element**
 - Create a taxonomy that specifies a set of terms that can be used to relate one resource to another, e.g. some of the terms defined by the Dublin Core Metadata Initiative
- 10. Creating your own version of or “profiling” DDMS is not a valid approach to extension.**

DDMS Versioning Approach

- **The DDMS uses a 3 dot notation (major.minor.dot) for versioning.**
 - **major:**
 - **A major version change occurs when:**
 - The addition of a new category of discovery metadata, or
 - A modification in the requirement of a category of discovery, or
 - A change that will cause widespread backwards incompatibilities
 - **minor:**
 - **A minor version change occurs when:**
 - Additional elements or attributes to existing categories are added, or
 - A significant modification to the XML syntax for a particular category of elements is made, e.g., the restructuring of the geospatialCoverage syntax in the DDMS caused a version change from DDMS 1.3 to DDMS 1.4.
 - **dot:**
 - **A dot version change occurs when:**
 - A change to the DDMS that does not cause a significant impact to the existing categories or XML syntax occurs, e.g.
 - » A grammatical change is made to the DDMS, or
 - » Clarifications to the DDMS Specification and/or minor changes to the DDMS XML Schema intended to bring the DDMS Specification and the XML Schema into closer alignment are made.

More on DDMS

- You can find out more about the DDMS at:
<http://metadata.ces.mil/mdr/irs/DDMS/>.
 - This site contains the most up-to-date information on the DDMS, including visibility into the current configuration management items.
- Affecting and changing the DDMS
 - There is a process for submitting a Change Request that is described at:
https://metadata.ces.mil/mdr/irs/DDMS/cm/RFC_Process.html
 - Alternatively you can contact ddms@fgm.com and we will assist you in navigating the process.



Questions?

```
<?xml version="1.0" encoding="UTF-8"?>
<ddms:Resource xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/3.0/" xmlns:ICISM="urn:us:gov:ic:ism" xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:mdr="http://metadata.dod.mil/" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ICISM:classification="U" ICISM:ownerProducer="USA" ICISM:resourceElement="true"
ICISM:createDate="2011-02-22" ICISM:DESVersion="2">
  <ddms:identifier ddms:qualifier="http://metadata.dod.mil/mdr/ns/MDR/0.1/MDR.owl#URI" ddms:value="https://metadata.dod.mil/mdr/irs/DDMS/resources/DDMS
%20Overview.ppt"/>
  <ddms:title ICISM:classification="U" ICISM:ownerProducer="USA">DDMS Overview</ddms:title>
  <ddms:description ICISM:classification="U" ICISM:ownerProducer="USA">Briefing describing version 3.0 of the DDMS Specification and XML
Schema.</ddms:description>
  <ddms:language ddms:qualifier="http://metadata.dod.mil/mdr/ns/ExtStd/iso_639-2b.owl#en" ddms:value="en"/>
  <ddms:dates ddms:created="2011-02-22" ddms:posted="2011-02-22"/>
  <ddms:rights ddms:privacyAct="false" ddms:intellectualProperty="false" ddms:copyright="false"/>
  <ddms:type ddms:qualifier="http://purl.org/dc/dcmitype/Text " ddms:value="Text"/>
  <ddms:creator ICISM:classification="U" ICISM:ownerProducer="USA">
    <ddms:Person>
      <ddms:name>Joseph</ddms:name><ddms:surname>Pantella</ddms:surname>
    </ddms:Person>
  </ddms:creator>
  <ddms:pointOfContact>
    <ddms:Person>
      <ddms:name>Joseph</ddms:name><ddms:surname>Pantella</ddms:surname>
      <ddms:affiliation>FGM, Inc.</ddms:affiliation><ddms:phone>703-885-1000</ddms:phone><ddms:email>joe@fgm.com</ddms:email>
    </ddms:Person>
  </ddms:pointOfContact>
  <ddms:format>
    <ddms:Media>
      <ddms:mimeType>application/vnd.ms-powerpoint</ddms:mimeType>
      <ddms:extent ddms:qualifier="http://metadata.dod.mil/mdr/ns/UnitOfMeasure/0.1/ComputerStorage.owl#byte" ddms:value="1071000"/>
      <ddms:medium>digital</ddms:medium>
    </ddms:Media>
  </ddms:format>
  <ddms:subjectCoverage>
    <ddms:Subject>
      <ddms:category ddms:qualifier="http://metadata.dod.mil/mdr/ns/TaxFG/0.75c/Core_Tax_0.75c.owl#Asset" ddms:code="Asset" ddms:label="Asset"/>
      <ddms:category ddms:qualifier="http://metadata.dod.mil/mdr/ns/TaxFG/0.75c/Core_Tax_0.75c.owl#Tangible_asset" ddms:code="Tangible_asset"
ddms:label="Tangible asset"/>
      <ddms:keyword ddms:value="DDMS"/>
      <ddms:keyword ddms:value="Department of Defense Discovery Metadata Specification"/>
    </ddms:Subject>
  </ddms:subjectCoverage>
  <ddms:virtualCoverage ddms:protocol="http" ddms:address="https://metadata.ces.mil/mdr/ns/DDMS/3.0"/>
  <ddms:temporalCoverage>
    <ddms:TimePeriod>
      <ddms:start>2005-07-29</ddms:start><ddms:end>Unknown</ddms:end>
    </ddms:TimePeriod>
  </ddms:temporalCoverage>
```